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FIG. 1

Title: RULES BASED REAL-TIME
COMMUNICATION SYSTEM
Inventor Name: Charles J. Digate, et
al.
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Real-Time Messaging Server 14

PERSISTANT DATABASE 15

RULES 32

RULES ENGINE 30

ACTIONS 40

EVENT NOTIFICATIONS 36

EPHEMERAL CONDITION DATA CACHE 38

FIG. 2

Title: RULES BASED REAL-TIME
COMMUNICATION SYSTEM
Inventor Name: Charles J. Digate, et
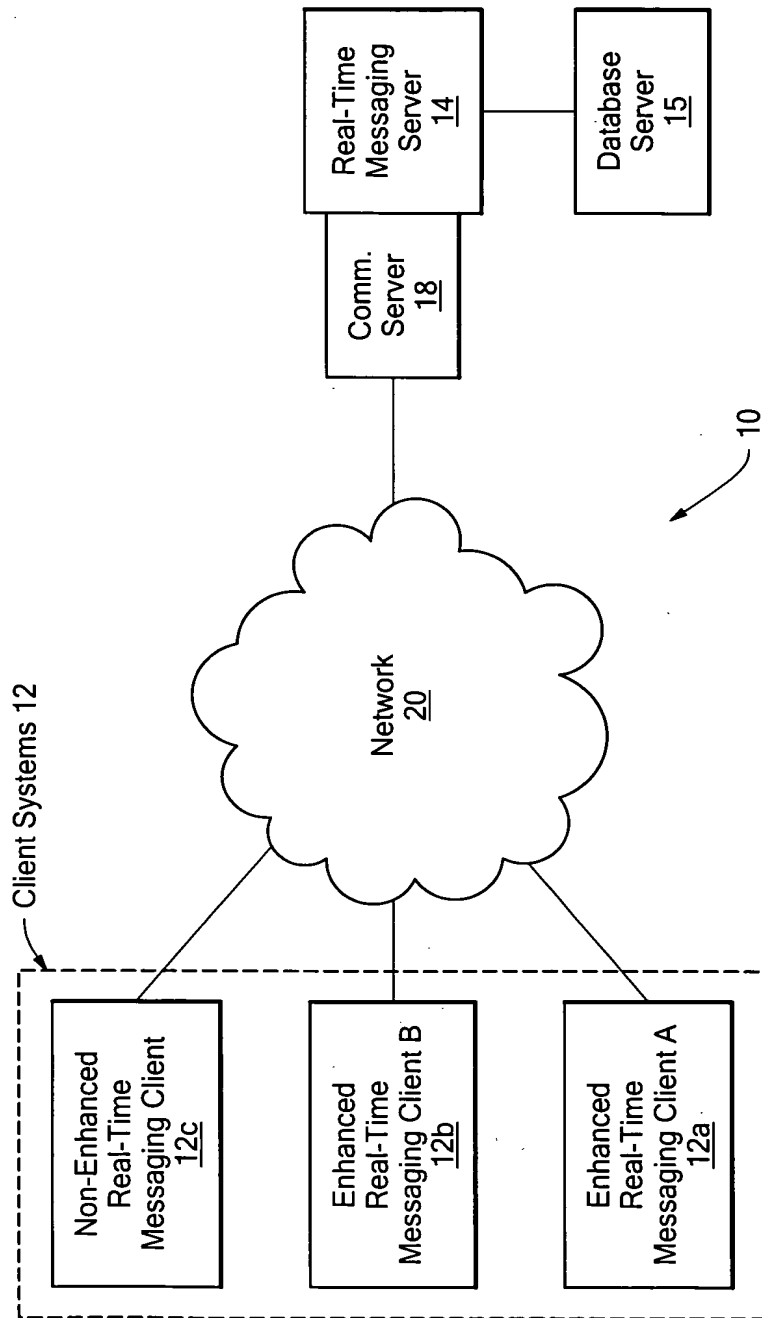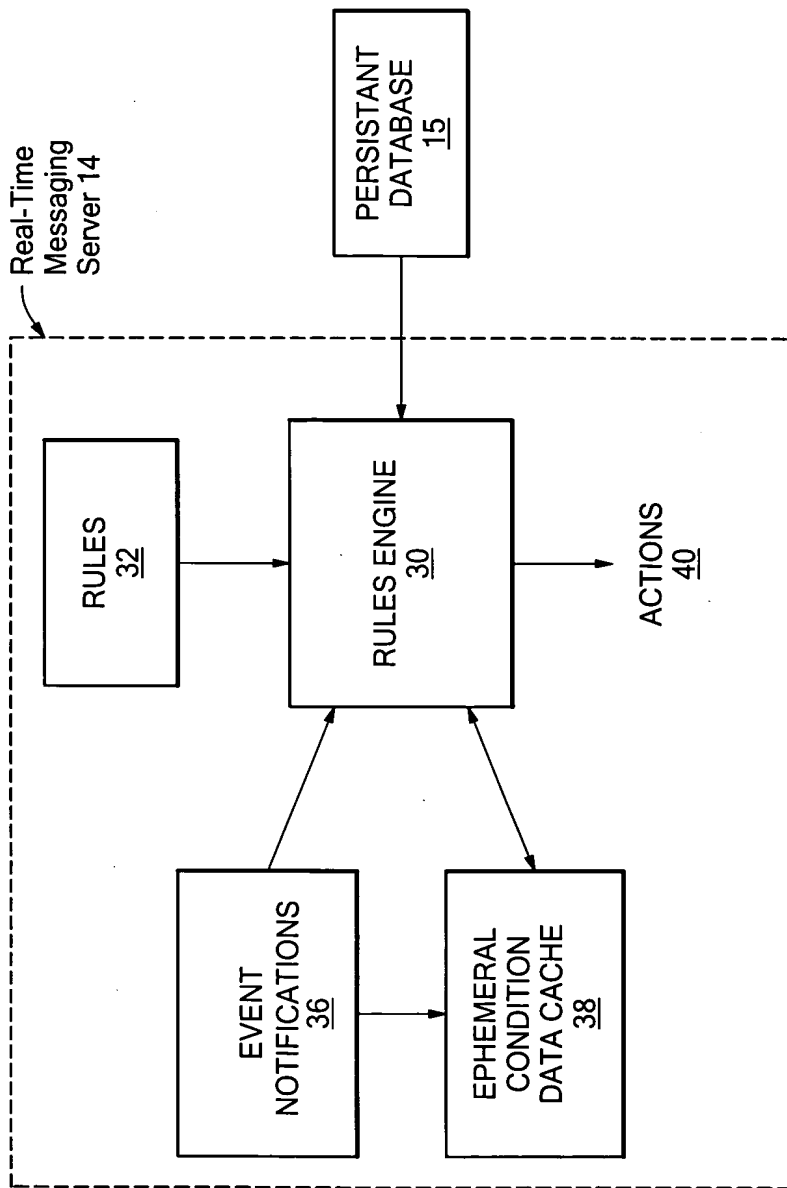al.
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SELECT A LIFELINE NAME
41

DEFINE NEXT USER
WITHIN THE LIFELINE
42

DOES THE USER
ACCEPT BEING INCLUDED
IN THE LIFELINE ?
43

YES

ADD THE
USER TO THE
LIFELINE
44

NO

YES — MORE USERS ?
45

NO

DEFINE THE ORDERING OF THE
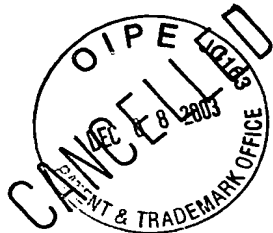USERS WITHIN THE LIFELINE
46

DISTRIBUTE THE LIFELINE
47

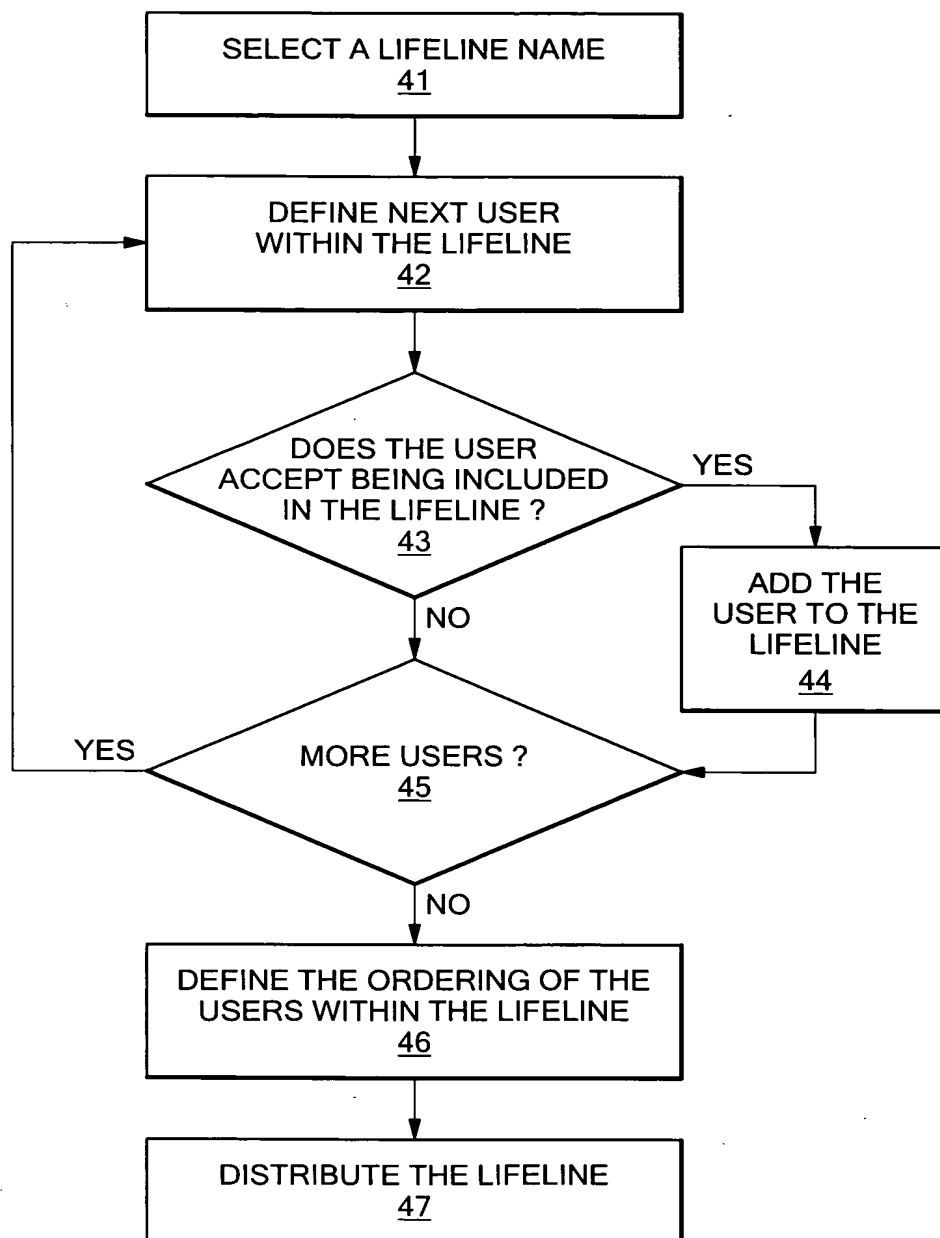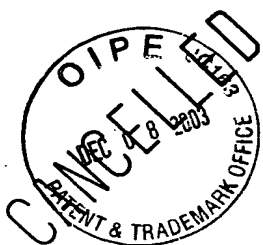*FIG. 3*

Title: RULES BASED REAL-TIME
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USER REQUESTS A REAL
TIME GROUP ACTION
50

↓

DETERMINE THE INITIAL
MEMBERS OF THE GROUP
51

↓

ARE THE MEMBERS OF
THE GROUP AVAILABLE ?
52

↓

FOR ANY UNAVAILABLE GROUP MEMBERS, ARE
THERE APPROPRIATE STAND-INS AVAILABLE ?
54

↓

FOR EACH AVAILABLE STAND-IN, DOES HE
OR SHE AGREE TO BE A STAND-IN ?
55

↓

SUBSTITUTE APPROPRIATE, AVAILABLE,
AGREEING STAND-INS FOR
CORRESPONDING UNAVAILABLE
GROUP MEMBERS
56

↓

COMMENCE REAL TIME GROUP ACTION IF
SUFFICIENT GROUP MEMBERS ARE AVAILABLE
58

FIG. 4

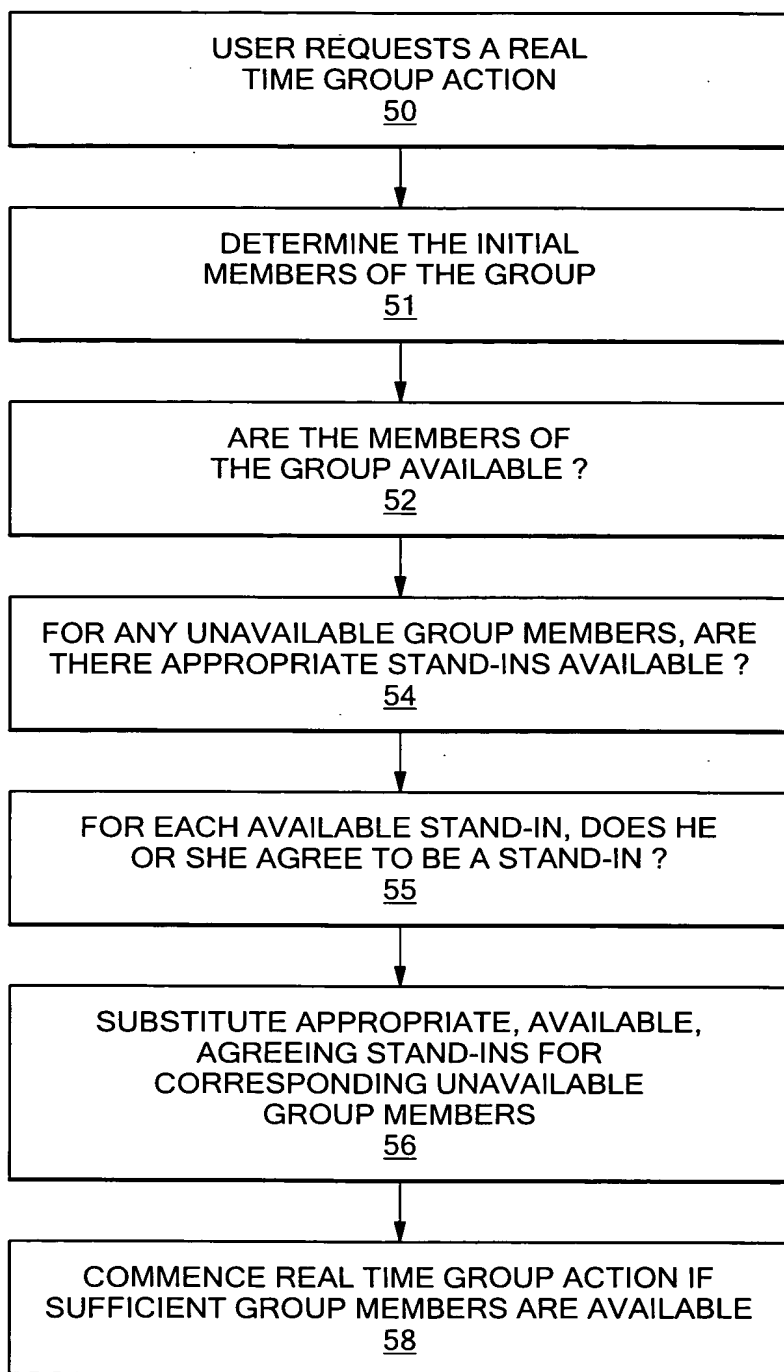| DETECT EVENT 60 | → | CHECK RELEVANT CONDITIONS 62 | → | PERFORM INDICATED ACTION 64 |

FIG. 6

FIG. 5

FIG. 7

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FIG. 8

Title: RULES BASED REAL-TIME
COMMUNICATION SYSTEM
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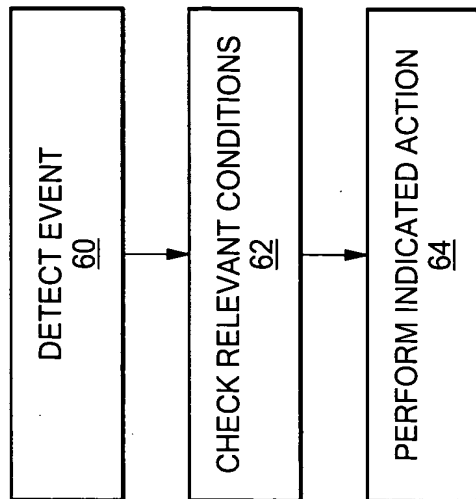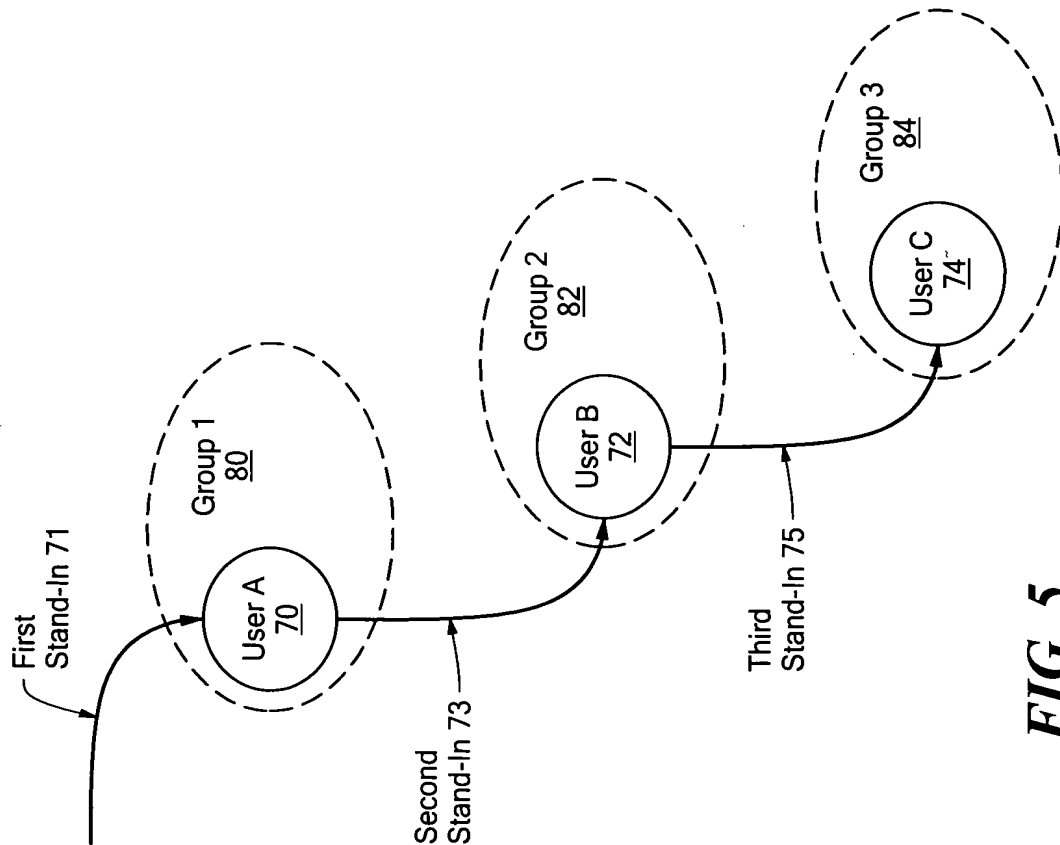al.
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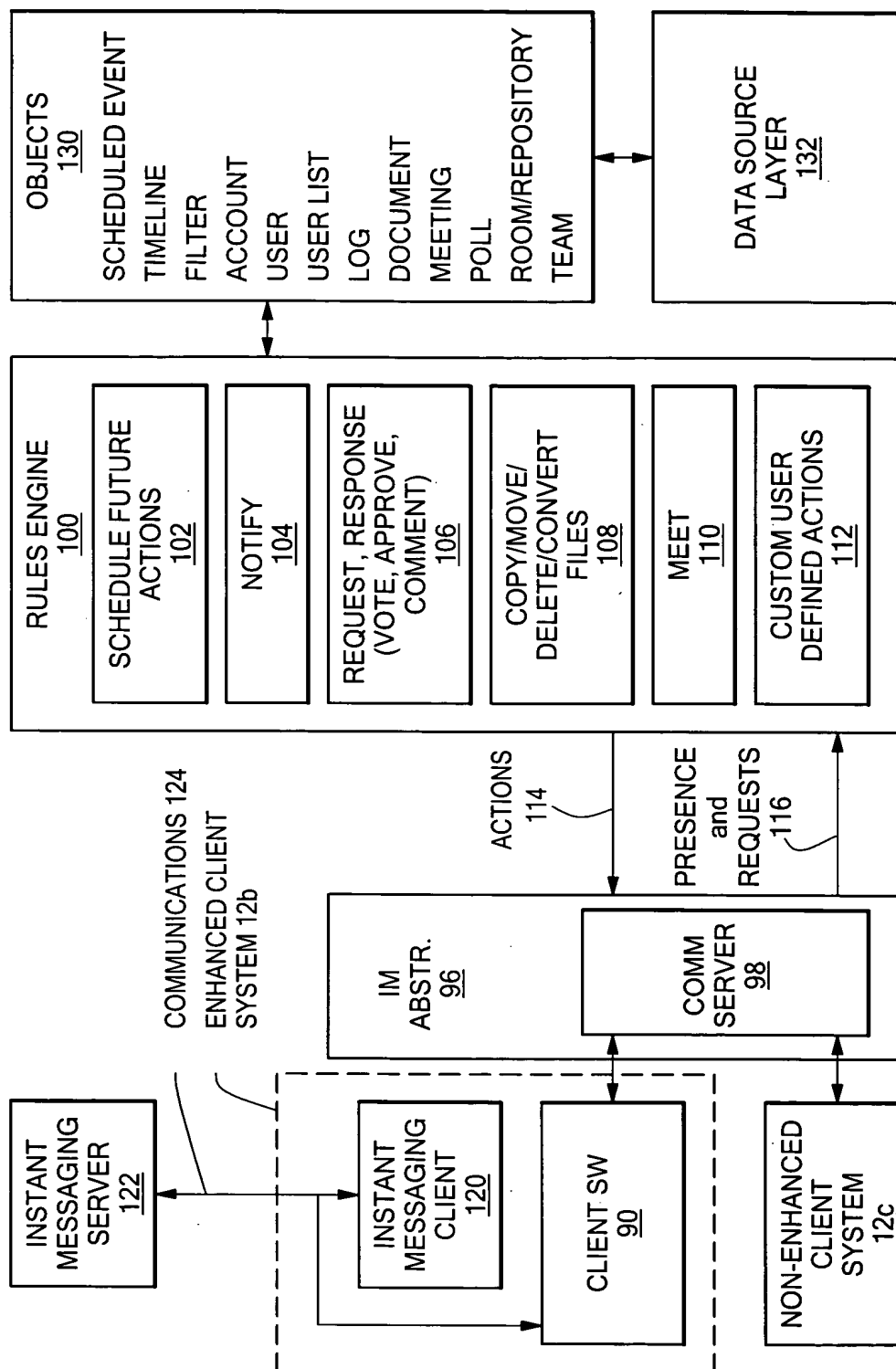| When (Events) 172	If (Conditions) 174	Then (Actions) 176
Presence Changes	Presence	Notify (IM, E-mail, SMS)
User goes Online/Offline	Auto-detected	
Explicit:	User Defined	Meet
Direct Manipulation	Device Availability	
User Defined	Camera	Schedule
	Video	
Implicit:	PC	Call
In a meeting	Phone	
on the telephone	SMS	Route
In-meeting events (e.g. presenting)	PDA	
	Bandwidth Capacity	Broadcast
	Contact preference	
Time Passes	Identify	Contact Delegate
Specific	PID	
Recurring	Lifeline	Leave Message
Elapsed Time	-membership	
Inaction	location	Transfer Thread
	Group Membership	
Invitation received	General	Retract
To meet	selection by role/rule	
To join group/team		
System Condition occurs		
Trigger from 3rd party application		

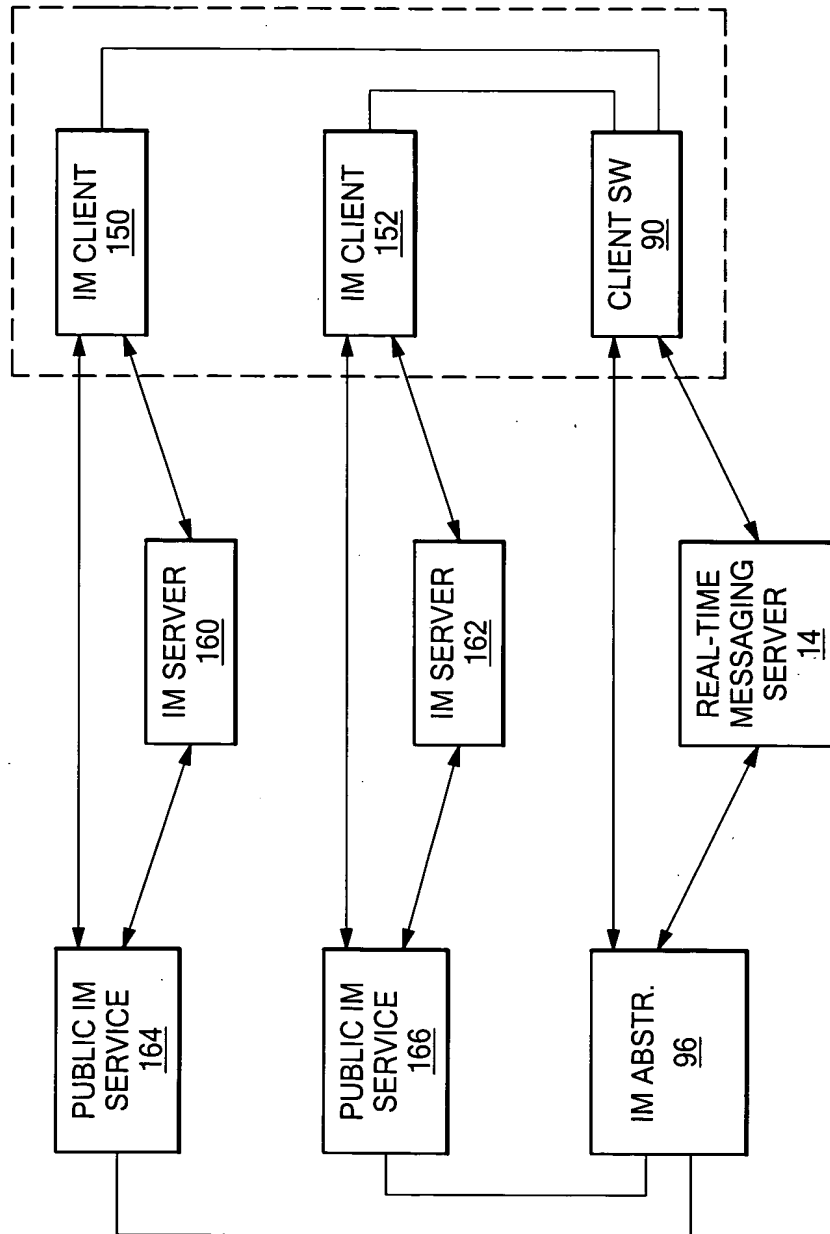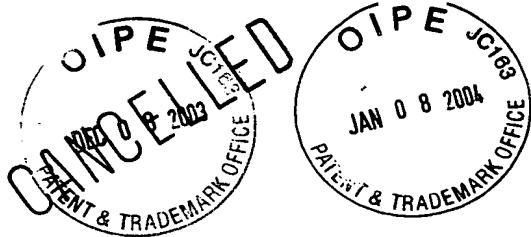*FIG. 9*

Title: RULES BASED REAL-TIME
COMMUNICATION SYSTEM
Inventor Name: Charles J. Digate, et
al.
Appl. No. 10/731,872
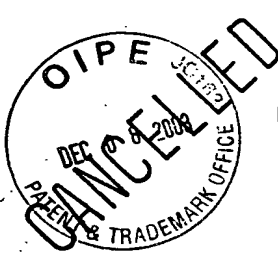Docket No.: APM-001AX

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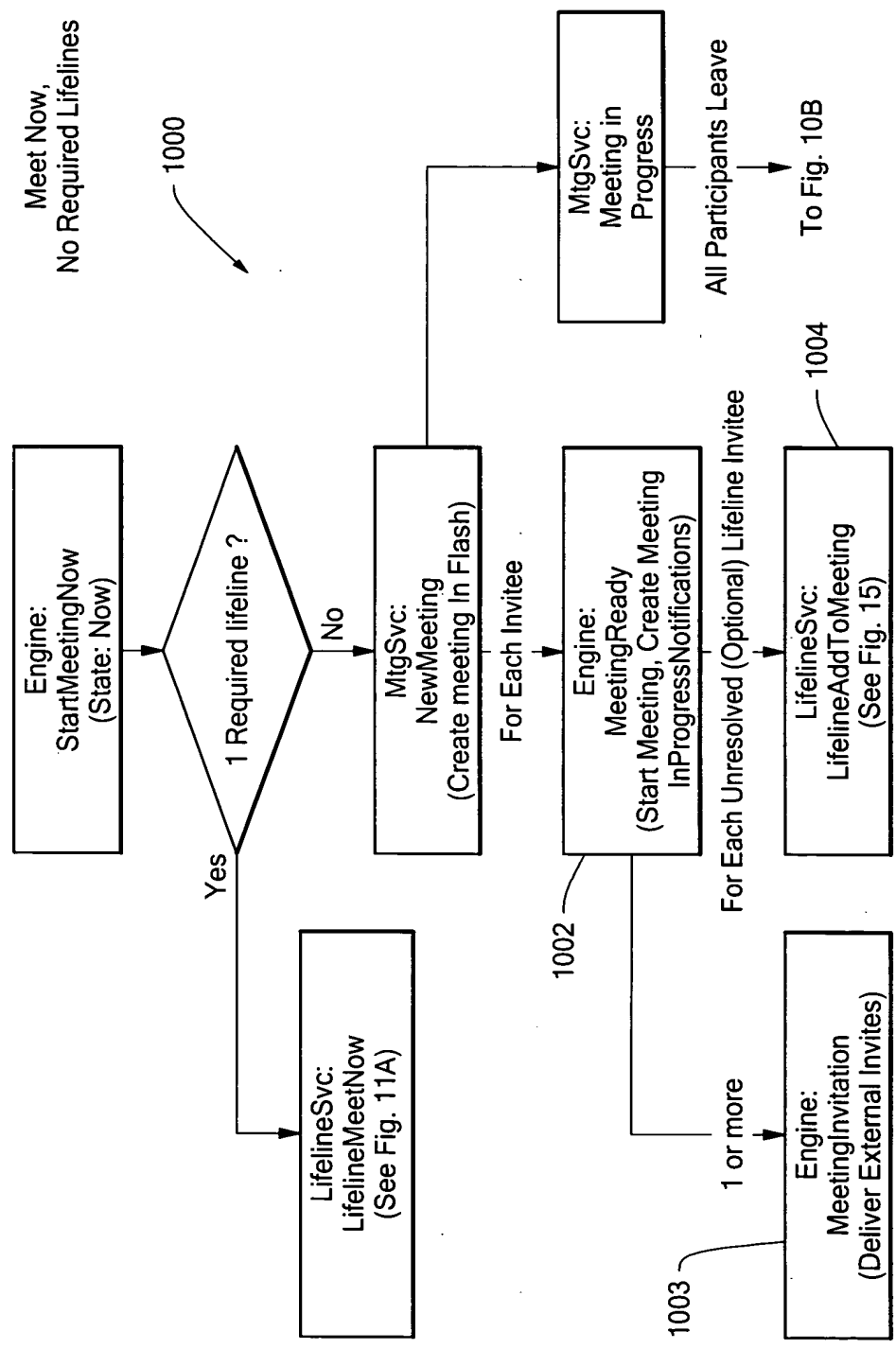
FIG. 10A

Title: RULES BASED REAL-TIME
COMMUNICATION SYSTEM
Inventor Name: Charles J. Digate, et al.
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From Fig. 10A →

Engine:
MeetingConcluded
(End Meeting;
Kill Invitations;
Send Missed Msgs) — 1006

For Each Recorded Request →

Meeting Cancelled ? — 1010

Yes →

LifelineSvc:
LifelineCancelRequest — 1014

LifelineSvc:
LifelineExitMeeting
(End Assignment) — 1015

No →

Send as Message ? — 1007

No →

(Kill External Invitations) — 1011 → END

Yes ↓

Client:
SentMessageNotification
(to Owner) — 1008

If Owner Deletes Notification →

DOM:
Delete Meeting — 1012

Callback From DOM →

Engine:
HandleMeetingDeleted
(Delete all related notifications) — 1016 → END

Client:
MissedMeetingNotification
(1 per Invitee) — 1009

If Invitee Activates Notification →

Engine:
ActivateMissedMeeting
(Fetch text of missed meeting) — 1013

→ Engine:
StartMeetingNow
(above) — 1017

FIG. 10B

FIG. 11A

Meet Now,
1 Required Lifeline

1100

Engine:
StartMeetingNow
(See Fig. 10A)

↓ 1 Required Lifeline

LifelineSvc:
LifelineMeetNow
(Request Resource;
Activate Request)

Resource
Available ?

Yes →
LifelineBroker:
Manage Request
(See Fig. 16A)
→ To Fig. 11B

No ↓

Client:
ResponseLifelineUnavailable   1102

→ LifelineSvc:
ReplyToLifelineUnavailable   1103

→ MeetASAP
Instead ?   1104

Yes →
Lifeline:
CreateMeetASAPRequest
(See Fig. 13)   1105

No → To Fig. 11B

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FIG. 11B

FIG. 12A

Meet ASAP,
No Required Lifelines

Engine:
StartMeetingASAP
(State: ASAP)

Required
Lifeline ?

Yes → LifelineSvc:
LifelineMeetASAP
(See Fig. 13)

1200

No →

(Create Meeting,
Notify PVS,
Notify Timer)

1208

Client:
PendingMeeting
Notification

1202 User Deletes Notification

Engine:
CancelMeetASAP
(Kill Start
MeetingASAP)

MtgSvc:
CancelMeeting
(See Fig. 11B)

SUSPEND
StartMeetingASAP

Group
Sub
Changes

Request Times Out

Engine:
HandleTimeOut
(Kill Pending
MeetingNotification)

1203

DOM:
Delete Meeting
(See Fig. 10B)

When a
DataPendingMeetingState
enables the
Notification

To Fig. 12B

Client:
MeetASAPReset
Notification

1204

END

Engine:
HandleAllPresent

1205

Client:
DataPending
MeetingState
(Enable/Disable
PendingMeeting
Notification)

1206

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From Fig. 12A

1209 — Client:
MeetingReady
(Notification->enabled)

Client Invokes Notification

1210 — Engine:
DoInvokeMeeting

1211 — Lifeline
Request ?

Yes

1212 — LifelineSvc:
LifelineInvokeMeeting
(Confirm reservation)

No

1213 — Engine or LifelineSvc:
FinishInvokeMeeting
(Kill StartMeetingASAP,
Kill Notification
State: Now)

1214 — MtgSvc:
NewMeeting
(See Fig. 10A)

FIG. 12B

MeetASAP
1 Required Lifeline

Lifeline Broker:
Manage request
(See Fig. 16A)

LifelineSvc:
LifelineMeetASAP
(Request Resource)

LifelineSVC:
CreateMeetASAPRequest
(State: ASAP
Notify PVS Group Sub)

Client:
PendingMeetingNotification
(See Fig. 12A)
(Contains Lifeline Request)

Sub
Changes
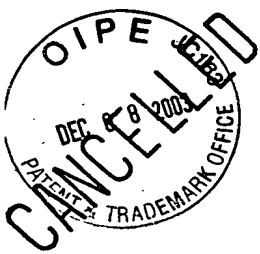
LifelineSvc:
HandleGroupOnline
(Activate / Suspend
Request)

1300

FIG. 13

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COMMUNICATION SYSTEM
Inventor Name: Charles J. Digate, et
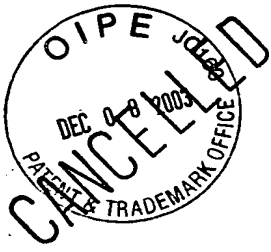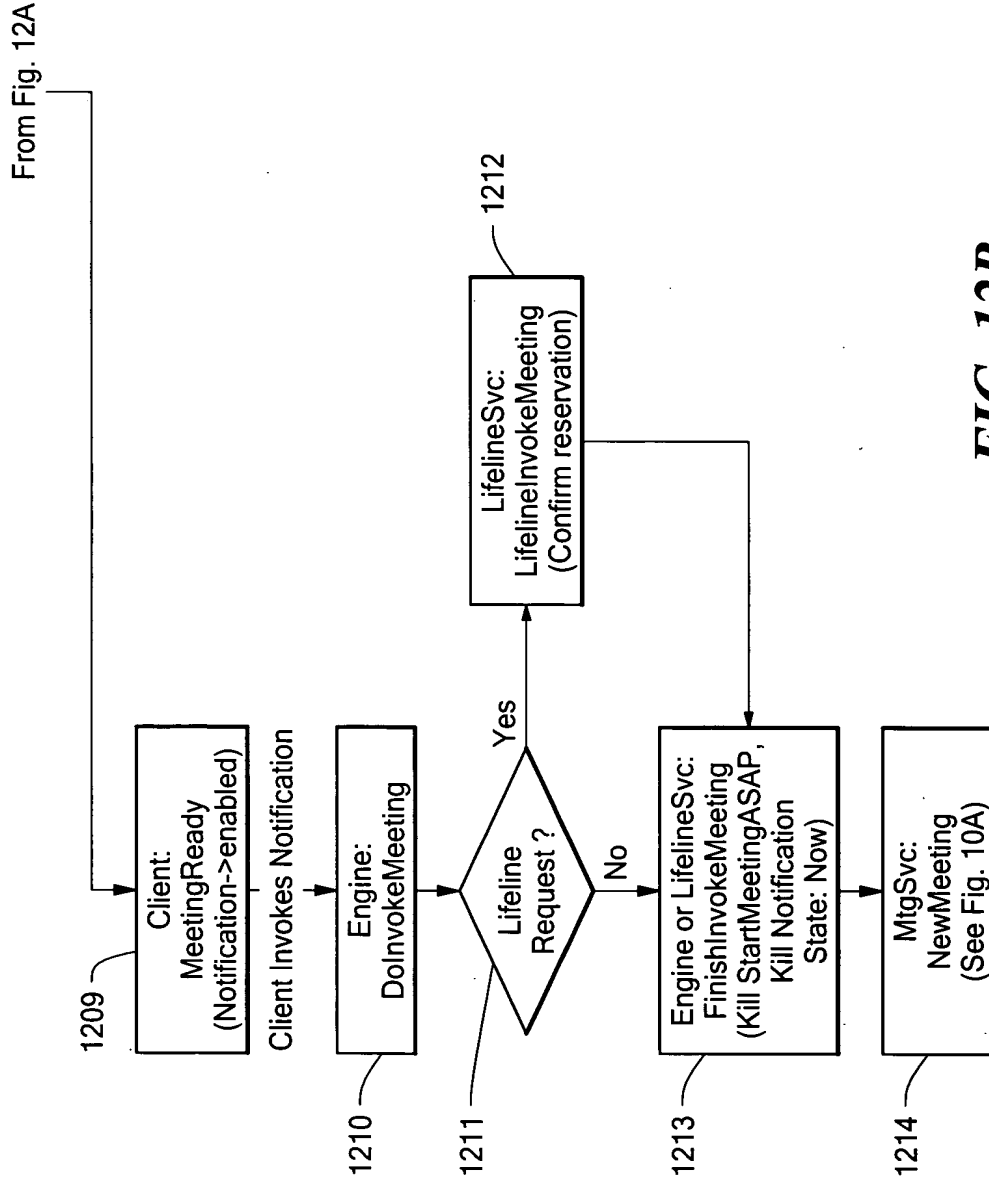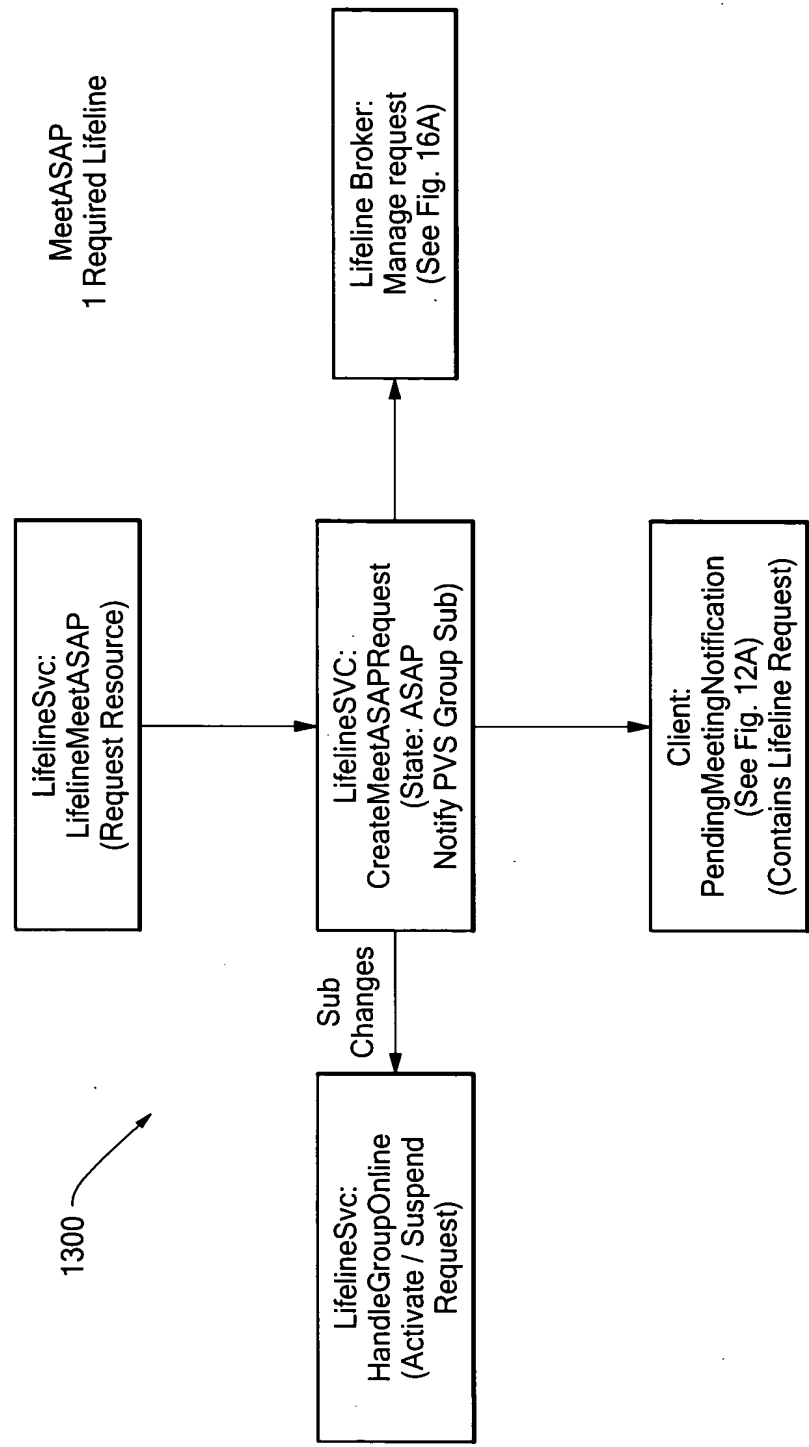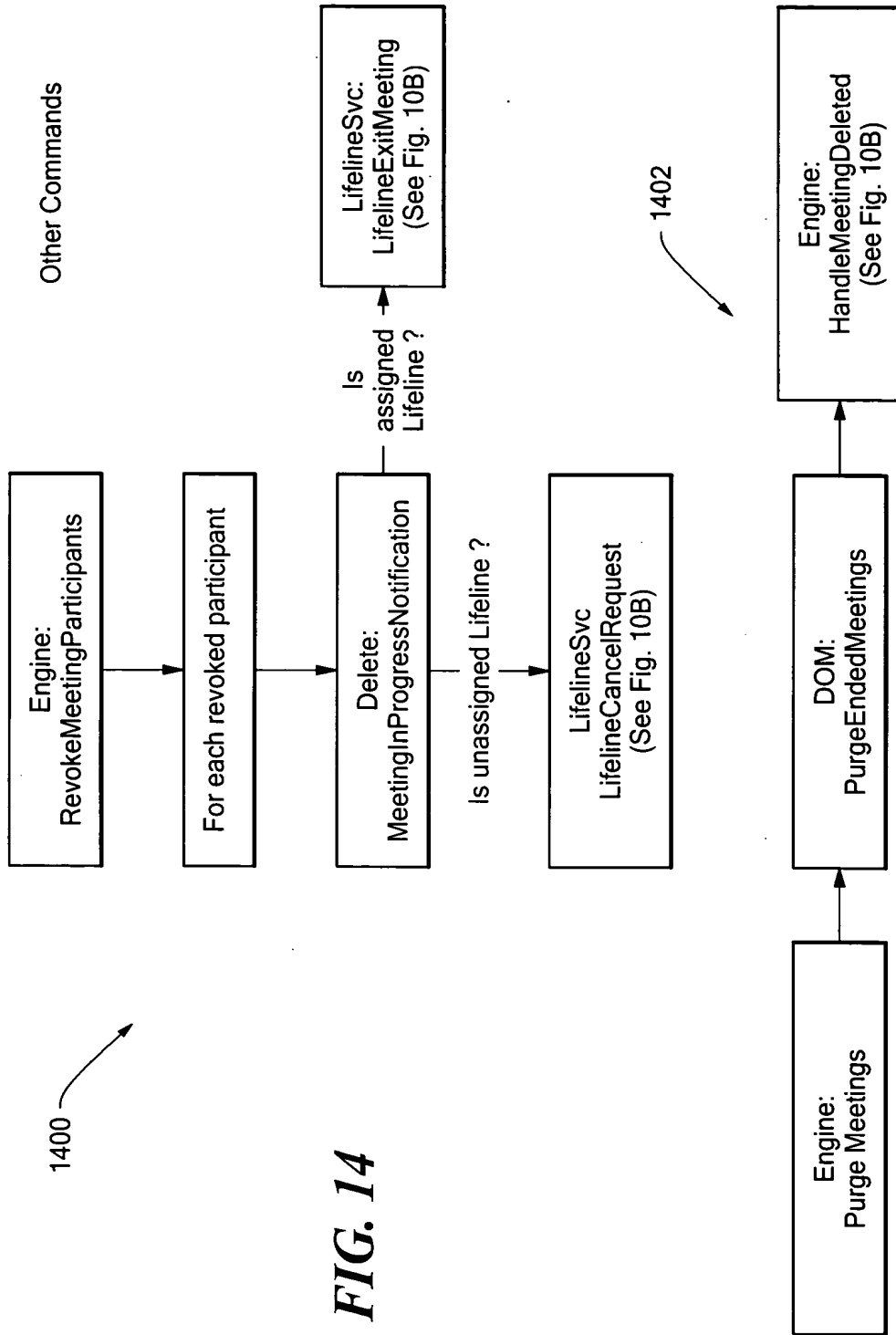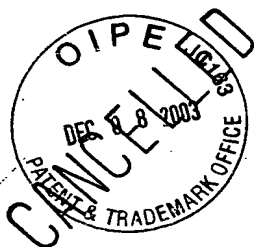al.
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FIG. 14

1500

Optional Lifelines
Workflow

```
┌─────────────────────────────────┐
│            Engine:              │
│         MeetingReady            │
│   (with Unresolved Lifelines)   │
│  (Meeting State: In Progress)   │
│        (See Fig. 10A)           │
└─────────────────────────────────┘
                │
    For each unresolved (optional) Lifeline
                │
                ▼
┌─────────────────────────────────┐
│          LifelineSvc:           │
│      LifelineAddToMeeting       │
│       (Request Resource;        │
│         Active Request)         │
└─────────────────────────────────┘
                │
                ▼
┌─────────────────────────────────┐
│         LifelineBroker:         │
│         Manage request          │
│        (See Fig. 16A)           │
└─────────────────────────────────┘
                │
       When a resource accepts
                │
                ▼
┌─────────────────────────────────┐
│          LifelineSvc:           │
│        AcceptAssignment         │
│        (See Fig. 16B)           │
└─────────────────────────────────┘
                │
                ▼
┌─────────────────────────────────┐
│            MtgSvc:              │
│      NewMeetingParticipants     │
└─────────────────────────────────┘
                │
     Add Lifeline Resource To Meeting
                │
                ▼
┌─────────────────────────────────┐
│            Engine:              │
│         MeetingReady            │
│     (With resolved Lifeline)    │
│        (See Fig. 10A)           │
└─────────────────────────────────┘
```

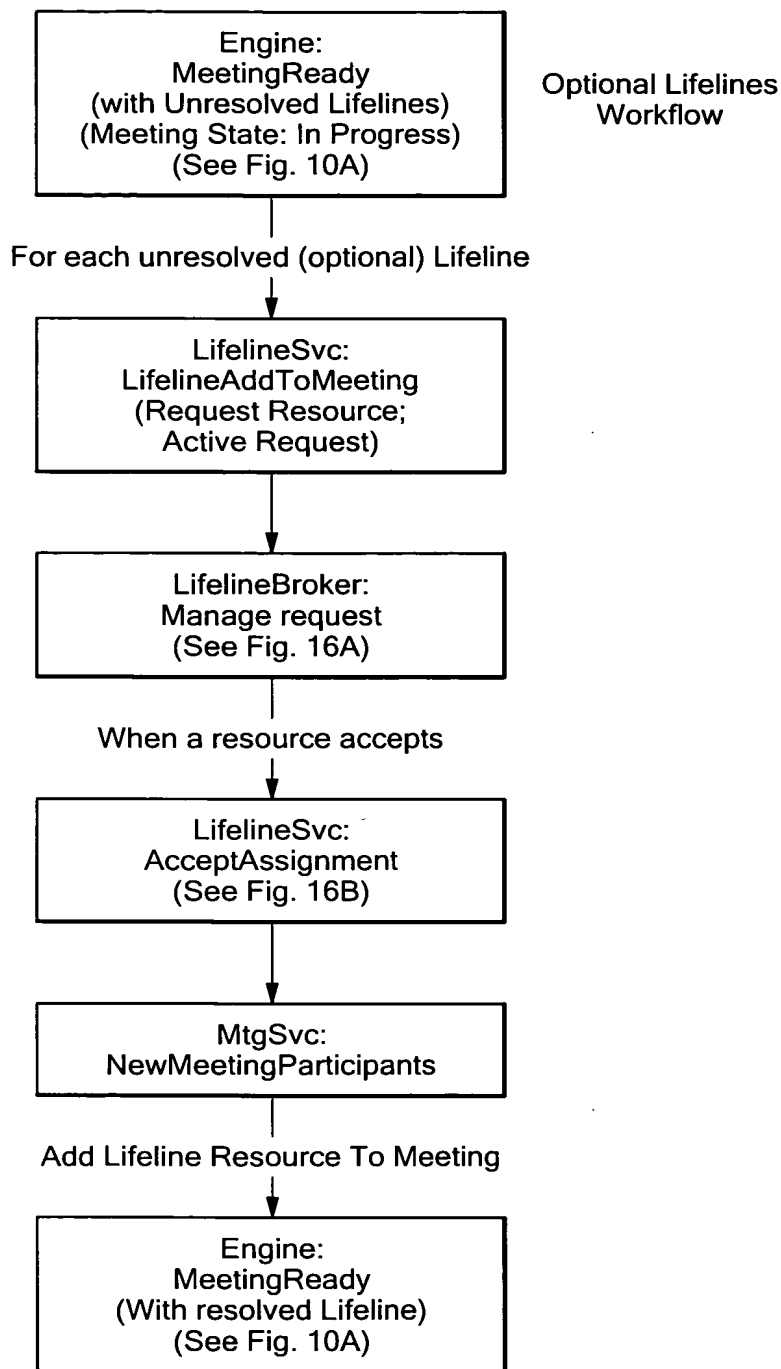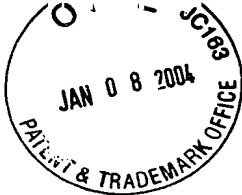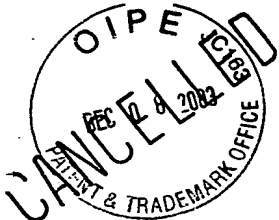*FIG. 15*

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al.
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FIG. 16A
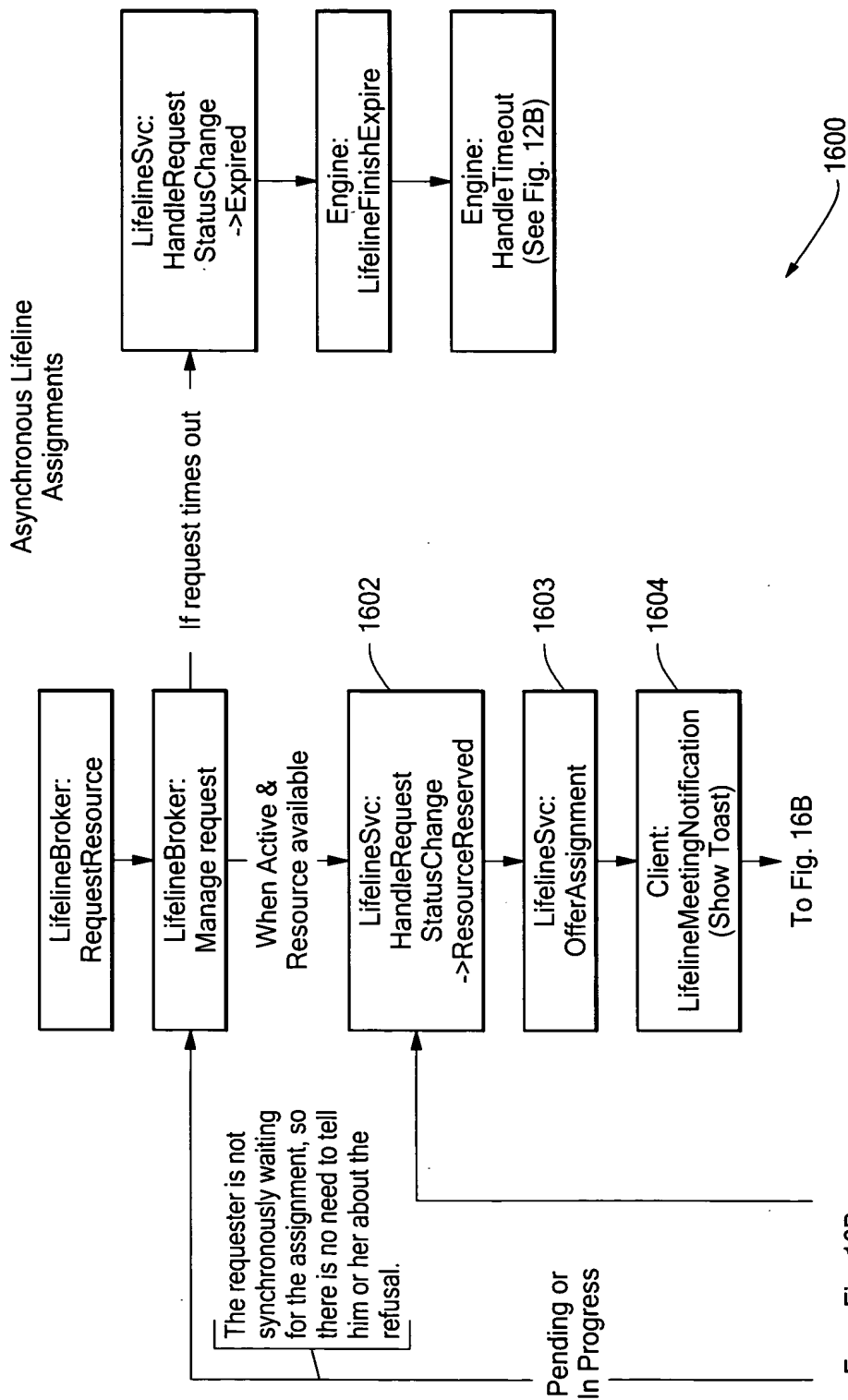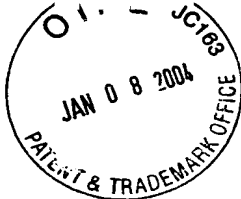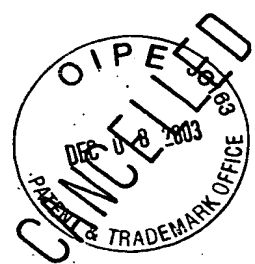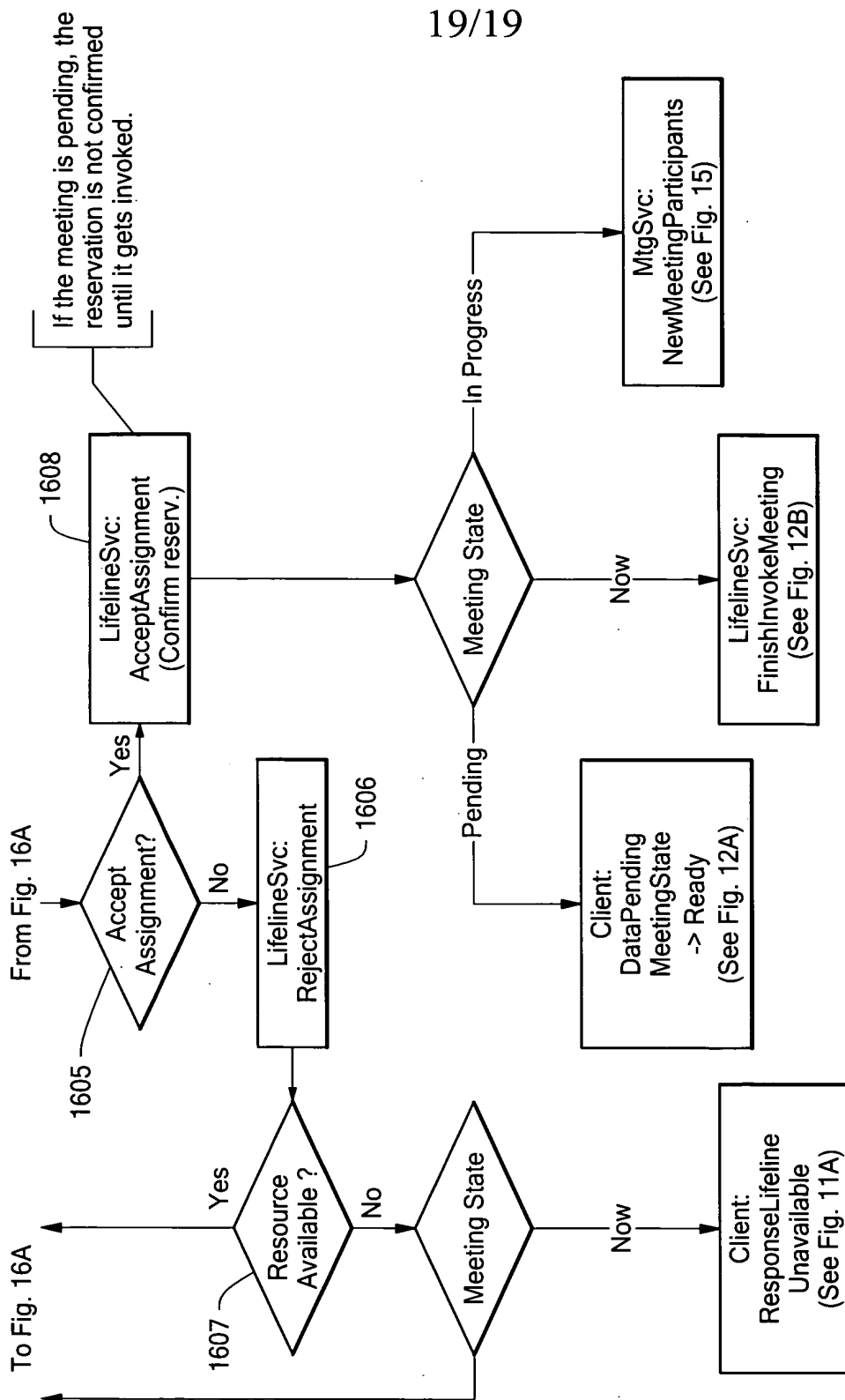
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From Fig. 16A → **Accept Assignment?** (1605)

— Yes → **LifelineSvc: AcceptAssignment (Confirm reserv.)** (1608)

If the meeting is pending, the reservation is not confirmed until it gets invoked.

→ **Meeting State**

- In Progress → **MtgSvc: NewMeetingParticipants (See Fig. 15)**
- Now → **LifelineSvc: FinishInvokeMeeting (See Fig. 12B)**
- Pending → **Client: DataPending MeetingState -> Ready (See Fig. 12A)**

Accept Assignment? — No → **LifelineSvc: RejectAssignment** (1606)

→ **Resource Available ?** (1607)

- Yes → To Fig. 16A
- No → **Meeting State**
  - Now → **Client: ResponseLifeline Unavailable (See Fig. 11A)**

To Fig. 16A

FIG. 16B